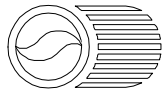


# Diesel Risk Reduction Plan

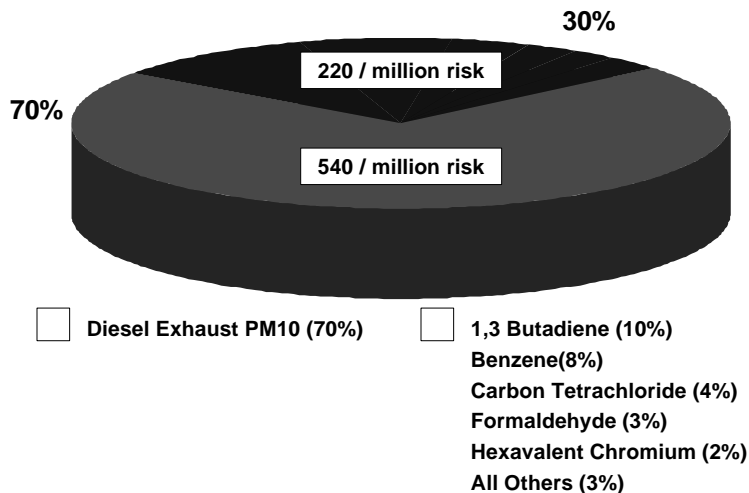


California Environmental Protection Agency  
Air Resources Board

## Why should we reduce emissions from diesel-fueled engines?

- Diesel emissions are a significant health concern
- Public exposure and risks are very high
- Effective diesel emissions controls are readily available

## Diesel PM Responsible for 70% of Year 2000 Statewide Risk from Air Toxics Emissions



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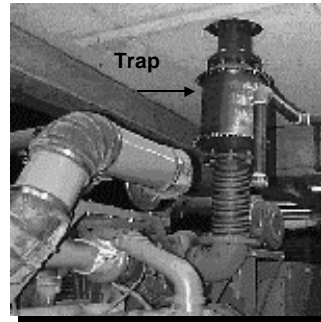
## Emissions

- 1,250,000 vehicles and engines
- Mobile
  - ◆ on-road (trucks, buses) - 690,000
  - ◆ off-road (construction equipment) - 550,000
    - ✦ includes portable equipment - 50,000
- Stationary
  - ◆ power, pumping, production - 16,000
- Total diesel PM emissions 25,000 TPY

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## Effective Reduction Options are Readily Available

- Diesel traps are effective for both new and existing engines
- Alternative technologies
  - ◆ electrification
  - ◆ fuel cells
- Alternative fuels
  - ◆ CNG, LNG, LPG, dual-fuel
- Alternative diesel formulations/additives
- Engine modifications



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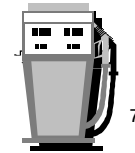
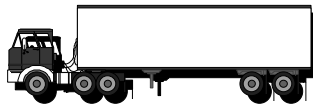
## The Diesel Risk Reduction Plan

- Reduce emissions from *new* mobile, portable, and stationary engines
- Reduce emissions from *existing* mobile, portable, and stationary engines
  - ◆ retrofit where economically reasonable
- Provide very low-sulfur diesel fuel (15ppm) for diesel traps
- Undertake demonstration programs; develop incentive programs
- Work with stakeholders and International Retrofit Advisory Committee

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## Control Measures

- Mobile on-road and off-road engines
- Stationary and portable engines
- Fuel requirements
- Requires federal action for some categories
- Adoption beginning in 2002



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## Mobile Source Measures

- Lower new engine standards for on- and off-road vehicles
- Retrofit of existing on- and off-road vehicles when makes sense
- Control of in-use emissions for on- and off-road vehicles
- Pleasure craft standards and test procedures for HDV certification
- Implementation (2002 -2008)



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## Stationary and Portable Engine Measures

- Address both new and existing engines
- Address emergency/standby, industrial, agricultural, and portable engines
- Implementation between 2002-2005



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## Fuel Measure

- Very low-sulfur CARB diesel fuel (15 ppm)
- Full implementation by 2006
- Provide for early introduction of very low-sulfur CARB diesel for selected applications



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## **Federal Action Is Critical**

- **Locomotives**
- **Commercial marine vessels**
- **New farm and construction equipment <175 hp**
- **New heavy-duty vehicle standards**
- **Low-sulfur fuel specifications**



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## **Reductions from Existing Engine Retrofits are Critical**

- **In 2010, 85% of the reductions come from retrofit of existing engines**
- **“Retrofits” include add-on controls, replacement, and use restrictions for older engines**

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## **Our Approach for Control of Existing Engines**

- **Must be sensible in determining which existing engines should be retrofitted**
- **Must be economically reasonable**
- **Numerous demonstration projects planned**
- **Develop voluntary and incentive-based programs**

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## **International Retrofit Advisory Committee**

- **Advises ARB on feasible and effective ways of implementing retrofits**
- **40 technical experts and stakeholders**
- **Engine manufacturers, control manufacturers, fleet operators, diesel fuel suppliers, construction, agriculture, academia, environmental organizations, air pollution control districts, and U.S. EPA**

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## Benefits of Plan



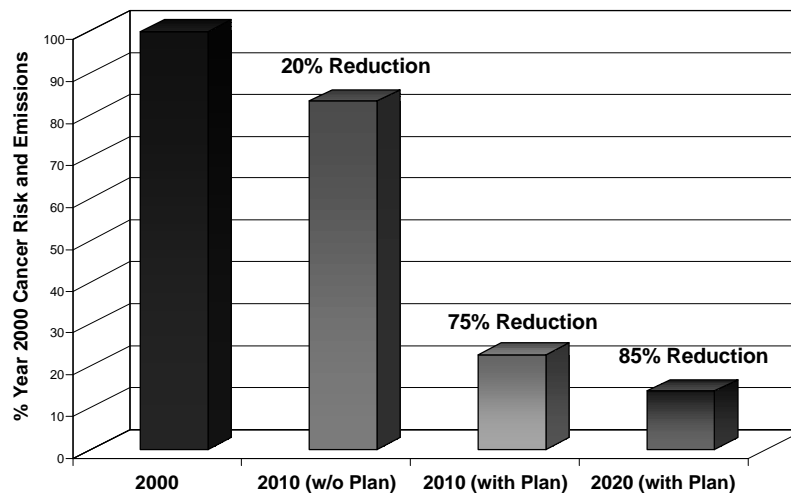
- Significantly reduces diesel PM emissions
- 75% reduction in potential cancer risks by 2010, 85% by 2020 (see next slide)

- Decrease in noncancer health effects (asthma, bronchitis)
- Improve visibility
- Reduce “soiling”



### Proposed Plan Reduces Diesel PM Emissions and Risk by 75% in 2010 and by 85% in 2020

*Benefits*



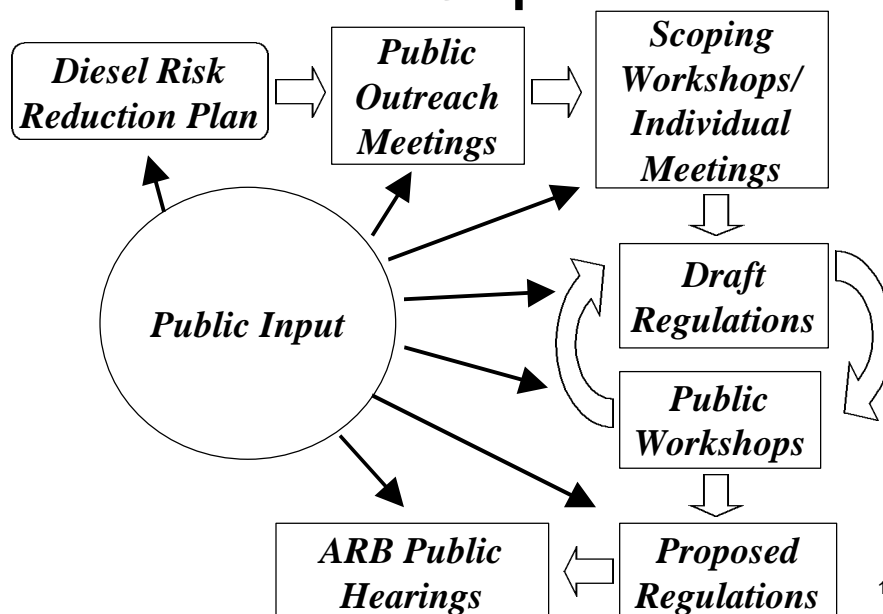
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## Cost of Controls

- Sensitive to the economic impacts
- Costs comparable to other major ARB programs
- Conduct detailed cost analysis as measures are developed
- Develop incentive-based programs

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## Next Steps



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